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ABSTRACT

This paper identifies two intellectual traditions that dominate professional education, one concentrating on content coverage and one concentrating on the profession's problem-solving processes. It then examines several fields of professional education, some of which have exclusively adopted one or the other of these traditions and some of which have not made such a commitment. The paper argues that, even though an emphasis on either orientation at the expense of the other can do a disservice to their students, there are several reasons why professional educators can adopt such an exclusionary stance, the principal one being that they are unable to develop strong community norms while sustaining a tension between these two traditions. The fields examined are medicine, engineeering, law, architecture, and several other professions. (Author)

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Issue Paper 89-3

MEANS AND ENDS IN PROFESSIONAL EDUCATION

Mary Kennedy

NCRTE

National Center for Research on Teacher Education

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Mary Kennedy

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National Center for Research on Teacher Education

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Abstract

This paper identifies two intellectual traditions that dominate professional education, one concentrating on content coverage and one concentrating on the profession's problem-solving processes. It then examines several fields of professional education, some of which have exclusively adopted one or the other of these traditions and some of which have not made such a committment. The paper argues that, even though an emphasis on either orientation at the expense of the other can do a disservice to their students, there are several reasons why professional educators can adopt such an exclusionary stance, the principal one being that they are unable to develop strong community norms while sustaining a tension between these two traditions. The fields examined are medicine, engineering, law, architecture, and several other professions.

MEANS AND ENDS IN PROFESSIONAL EDUCATION[1]

Mary M. Kennedy[2]

In a pragmatic society such as ours, professional education is sometimes considered easier to justify than liberal education. While liberal educators must defend vaguely defined outcomes such as intellectual liberation or broadened perspectives, professional educators often claim they are preparing people to do useful and socially important tasks. With the justification of utility comes the burden of accountability, for professional educators must develop and defend educational programs that assure that graduates can and will behave in particular ways.

The professional educator must, therefore, have a sense of what professional practice entails and of how education can influence practice. And although educators usually know the general boundaries of practice, they cannot anticipate the particular demands that will be faced by any particular practitioner. Professional educators have devised two general strategies for responding to this problem. One is to develop, codify, and give to students as much knowledge as possible--knowledge about every conceivable situation students may ever encounter--so that students are prepared for the maximum possible variety of situations. The other strategy is to prepare students to think on their feet, giving them both reasoning skills and strategies for analyzing and interpreting new situations, until they are sufficiently flexible and adaptable to accommodate the variety of situations they are likely to encounter.

The former strategy assumes that, even though particular situations are new, they are nonetheless examples of larger categories of situations and that there is a generally accepted best way to handle any given category of situation. Therefore, the role of professional educators is to provide students with knowledge of the generally accepted principles for handling each category of situation. The latter strategy assumes either that best strategies have not yet been discovered or that they are too situation-specific to ever be prescribed, so that the practitioner should be able to create solutions on his or her own. Therefore, professional educators have a responsibility to provide as much analytic and reasoning skill as possible.

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[1] This paper will appear as a chapter in W.R. Houston (Ed.), *Handbook for Research on Teacher Education* (New York: Macmillan).

[2] Mary Kennedy, professor of teacher education, is director of the National Center for Research on Teacher Education. The author is grateful to Arthur Elstein (University of Chicago School of Medicine) for his very helpful comments on this work. She also wishes to thank Lucy Sanchez and Rose Snitgen for their assistance in preparing the manuscript for publication.

These two views of practice, and of the relationship between professional education and practice, tend to dominate thinking not only about the technical aspects of practice, but also about its ethical aspects. When professional educators want to provide their students with a social conscience as well with intellectual tools, they usually resort to these same two methods: Either they provide their students with as much knowledge as possible about the variety of ethical issues they will face, and provide guidance in how to solve these categories of ethical issues, or they provide some kind of sensitivity training that is expected to function like analytic experiences do, enhancing the students' sensitivity to client needs so that the students can decide for themselves the best course of action, based on the particular circumstances of each case.

Neither of these two strategies is sufficient by itself. Knowledge cannot be applied without thought, and thought cannot function without knowledge. Yet the educational implications of dual goals are extremely difficult to define. If codified knowledge is important, and there is a substantial body of it to learn, then professional educators are obligated to provide as much of that knowledge as possible. If, in contrast, independent thought is important, then educators are obligated *not* to reveal their own best thinking on an issue but instead to wait the painful time it takes for students to work these ideas out for themselves. The apparently contradictory conclusions implied by these two educational goals lead many professions to choose one or the other approach, rather than try to achieve both.

There are three ways in which professional educators resolve the tension between these two goals: they emphasize the first goal, they emphasize the second goal, or they fail to reach consensus regarding their goal. The first section of this paper describes two fields--medicine and engineering--in which educators emphasize the first goal and try to give students as much codified knowledge as possible. The second describes two others--law and architecture--in which educators emphasize the second goal, and try to help students become independent thinkers. Each of these fields--medicine, engineering, law, and architecture--contains a small but vocal counterculture of educators who argue against the dominant view and for a better balance between the two goals. In the third section, several fields are described, one of which is teacher education, in which professional educators are so split between the two goals that no dominant view can be identified. Following these three sections is a section in which the same tension is described as it applies to developing students' social consciences, and a closing section that discusses the importance of a coherent view on this issue.

Before beginning, two caveats are in order. First, there is very little literature that describes average professional educational practices. Instead, literature in professional education tends to consist of (a) descriptions of particular innovations; (b) criticisms of the dominant goal, written by the counterculture in each profession; and (c) official statements of standards or surveys of practices, which summarize course requirements but provide little detail regarding pedagogy. It is possible that all three of these sources reflect only the views of a small fraction of elite educators who choose to write about their work. Second, when a particular view dominates thought within a field, that view is rarely articulated, for it is taken for granted among members of the group. I have tended to rely on the literature of the countercultures within each profession as a means of learning the dominant views. Their accounts are likely to be biased.

Providing as Much Codified Knowledge as Possible

Virtually every profession has a body of knowledge it thinks is relevant or even essential for its members to know: Physicians must know physiology, engineers physics, teachers learning theory, architects construction engineering. The content deemed most relevant is reflected in a list of courses students are required to take. The number of such courses needed, and the volume of knowledge identified as necessary, varies considerably from one profession to another.

It has been argued that the possession of specialized knowledge is *the* defining characteristic of a profession (Cullen, 1978; Shils, 1978) and that the volume of such knowledge available to each profession contributes to recognized status distinctions among the professions (Glazer, 1974). Yet the volume of codified knowledge taught to students is not strongly related to the level of their first professional degree. For example, library students take far fewer professional courses than do engineering students, but the librarian's first professional degree is a master's degree, whereas the engineer's is the bachelor's degree. And professional nurses may receive their first professional degree in any of three ways: through an associate degree, a baccalaureate degree, or a hospital diploma.

The two professions with the most knowledge-oriented curricula--medicine and engineering--also exemplify this point: In the United States and Canada, medical education begins *after* students have completed their baccalaureate degrees, whereas engineering programs are provided *within* the baccalaureate degree. While engineering students encounter such a heavy dose of course requirements that they rarely can complete their bachelor's degree within the allotted four years, medical students follow their bachelor's degree with two years of basic sciences and two years of clinical training. Among medical educators, these four years of basic and clinical sciences are called the *undergraduate* years, since virtually all physicians pursue further clinical specialization once they complete this four-year sequence.

With few exceptions, the two "undergraduate" years of basic sciences in medical education include such subjects as anatomy, biochemistry, physiology, pharmacology, microbiology, and pathology (Abrahamson, 1981; Thorne, 1973b; Wilson and Smythe, 1983), while the two years of undergraduate clinical studies are organized around the "clinical disciplines": obstetrics-gynecology, medicine, surgery, pediatrics, psychiatry, and sometimes family practice or some other elective (Association of American Medical Colleges, 1984). Moreover, in addition to this four-year undergraduate sequence, many students, whether encouraged by medical schools or not, choose a science major for their bachelors degree as well.

Medical students who do not study basic sciences for their bachelor's degrees, actually take fewer courses in the codified knowledge of the medical profession than would engineering students, even though medical students' first professional degree is much higher. A 1955 study of engineering education (American Society for Engineering Education, 1955) recommended that 75 percent of the undergraduate curriculum be devoted to mathematics, basic sciences, and engineering courses, giving students 20 percent course work in the humanities and 5 percent electives. This contrasts with 50 percent basic sciences in the medical student's "undergraduate" curriculum. Moreover, many engineering programs have been unable to maintain the balance proposed in 1955 and tend to require even more scientific or technical courses than this report recommended. By 1981 the distribution had evolved so that only 13 percent of student course work was devoted to humanities and social science, while 63 percent went to mathematics, science, and engineering and 25 percent went to electives. Even the electives students chose tended to provide technical, prescriptive knowledge in areas such as accounting, finance, and technical writing (Gerstein, 1981). Despite its heavy emphasis on technical content, this curriculum was and is considered "broad" by most engineering educators.

Teacher preparation has not concentrated on codified, prescriptive knowledge to the degree that medicine and engineering have, but it tends to lean in this direction more than in the direction of independent thought and analysis. Teacher education courses are organized around disciplines, called foundations, and around techniques of practice, usually called methods. The first set of courses includes educational psychology, sociology of education, philosophy of education, and history of education. The second includes methods for teaching mathematics, methods for teaching reading, and so forth. In the 1960s, teacher education went through a competency-based reform effort, intended to provide teachers with a more prescriptive knowledge base. The movement failed in part because teacher educators could not reach consensus that such prescription was appropriate for teachers and in part because competencies could not be justified on the basis of research. Now, a body of research findings on effective teacher behaviors has developed which could form the basis for a more prescriptive teacher-education curriculum (Brophy and Good, 1986; Gage, 1977, 1985; Smith, 1980; Watts, 1982). In light of these new findings, teacher education is experiencing a new movement toward codified and more prescriptive content in its curriculum (Gage, 1985; Gideonse, 1986; Evertson, Hawley, and Zlotnick, 1984).

Like the competency-based movement, this new movement in teacher education consists in part of defining the relevant content to be taught, and in part of organizing the teacher-education curriculum to assure that this content is included. In fact, interest in defining the knowledge base of teaching is currently so wide spread that the American Association of Colleges of Teacher Education has sponsored a major effort to define "the knowledge base" (Reynolds, in press; Smith, 1983) and the U. S. Education Department has funded several teacher-education programs to infuse their curricula with this research-generated knowledge base (Weil and Loucks-Horsley, 1987).

But even though the volume of codified knowledge is the mark most often associated with professional practice, and even though it is the goal most widely accepted by professional educators, a number of problems have arisen in medicine and engineering, where professional educators have overemphasized the knowledge-acquisition goal at the expense of independent thinking. These problems are listed below.

One outcome of trying to provide as much knowledge as possible is that, as new content areas and new technologies are developed, new courses are continually added to the curriculum (Gerstein, 1981; Wilson and Smythe, 1983). Similarly, as new knowledge is generated within recognized areas, existing courses are expanded. Consequently, both medicine and engineering have become victims of their own expanding knowledge bases (Eichna, 1980). Once the available space is filled, curriculum revision depends on difficult zero-sum decisions: Adding a new course here or a new chapter there necessarily means eliminating another course or chapter elsewhere.

Even clinical time is converted to the goal of efficiently transmitting knowledge. In medicine, faculty-student clinical interactions consist almost entirely of faculty lectures (Foley, Smilansky, and Yonke, 1979), and engineering laboratory courses have almost disappeared from the curriculum (National Research Council, 1986). A recent report on the status of engineering education programs (National Research Council, 1986) refers to a tenuous balance among priorities, such that additional courses in any area would seriously threaten the remaining areas, because any addition necessarily means deleting something from one of the other areas. In medicine, the Association of American Medical Colleges (1981) criticized politicians for adding their favorite topics--such as human nutrition, geriatrics, and human sexuality--to the list of medical school curriculum requirements, but was itself equally guilty of recommending the addition of information sciences--computers--to the medical curriculum (Association of American Medical Colleges, 1984).

Moreover, there are no rules for determining which content is most important. After all, the goal of the knowledge-oriented educator is to prepare the student for every possible contingency. When the curriculum is filled, as it quickly is, professional educators have no recourse but to add to its size, for they usually cannot agree on decision rules that enable some content to be removed from their list of important knowledge. The medical curriculum, for instance, which has been described as a relatively stable curriculum that has not changed substantially since the early 1900s (Abrahamson, 1979; Lundmerer, 1985), actually varies considerably from one institution to another because each program establishes its own criteria for content coverage in each subject. The time spent studying anatomy, for instance, ranges from 135-612 hours, depending on the institution; in physiology the range is 90-341 hours; in biochemistry 55-272 hours; and in neuroscience, 180-210 hours (Association of American Medical Colleges, 1984). Ironically, despite these variations in content coverage, most medical educators feel there is not much room to maneuver within the medical school curriculum.

According to the counterculture in each field, this orientation also negatively affects students. In medicine, critics argue that the press for content coverage forces students to memorize vast sums of material, with little opportunity to meaningfully digest it, that the very act of memorizing these facts can both inhibit thoughtful practice and promote survival ethics that are inappropriate for medical practitioners (American Association of Medical Colleges, 1984; Bishop, 1984; Eichna, 1980; Neame, 1984), and that the pace of clinical studies encourages students to learn to cope with death and disease through "gallows humor" (Fox, 1957), institutionalizing authority (Light, 1980), and guarding their autonomy and rejecting processes of accountability (Mizrahi, 1984).

In engineering, critics have argued that engineering graduates lack sound judgment and display disorganized thinking (Albright and Albright, 1981) and that they are learning only how to compute and not how to solve complex problems (Cowan, 1986). To solve these problems, some writers (Kemper, 1985-86) propose hiring more faculty who come from practitioner backgrounds (an argument that assumes the content could be taught in a way that simultaneously enhanced thought and analysis), while others (Ernst, 1985-86) propose that students take more laboratory and design courses (an argument that assumes independent thought and analysis must be learned in a different environment).

But the strong tide of interest in covering all the knowledge available mitigates against widespread acceptance of these views. In 1984, the Association of American Medical Colleges sponsored a major review of medical education, which turned out to be critical of the volume of material students had to memorize and which recommended altering both the curriculum and student evaluation procedures to attend more to the goal of independent learning and problem solving. They suggested that students should be "active, independent learners and problem solvers rather than passive recipients of information" (pp 2-3). The report generated considerable furor from medical educators who perceived it as antiscience and, implicitly, not intellectually rigorous (Muller, 1985). Resistance was so strong that the association sponsored a second curriculum review panel whose ostensible purpose was to elaborate on the first report (Association of American Medical Colleges, 1985). The second report reads more like a second opinion than like an addendum to the first report. It says the second panel had been concerned about the recommendation for more attention to problem solving, for fear that such attention would lessen the importance of the codified knowledge base in science. After review, however, this panel decided that its fear was unfounded and that the authors of the first reports were actually just trying to say that medical educators should not ignore these other aspects of student learning.

In these two fields, the emphasis on knowledge acquisition is so strong that a culture has become established in which content coverage is the primary criterion for success. Educators in these fields have come to see time spent solving problems as time *lost* from learning more content. There is a tendency, therefore, to resist proposals to attend to students' ability to make their own decisions, not only because these proposals would result in less time for learning codified content but also because they are perceived to make for a less rigorous program of study.

Because their cultural norms so strongly emphasize content coverage, medical and engineering educators often assume that the method for producing better decision makers consists of providing *separate content* rather than a *different way of learning the content that is already there*. For instance, Eck and Wilhelm (1979) propose giving engineering students slow-motion practice in decision making through an instructional strategy they call guided design. In guided design, decision-making steps constitute the content to be taught. Students are given a handout listing decision-making steps and problems to solve using these steps.

In the 1950s and 1960s, some medical educators did try to reform the medical curriculum radically. Two ideas dominated these reforms. One idea was to organize the codified knowledge so that it better reflected the contexts of practice--the organ systems--rather than the scientific disciplines from which it arose (e.g., Association of American Medical Colleges, 1984, Barrows, 1985; Rosse, 1974). Such a strategy would make the knowledge more relevant and more meaningful to students, and consequently more likely to be remembered. The second was to encourage students to take a more active role in their own learning by having them establish their own study agenda (Barrows and Tamblyn, 1980; Eichna, 1985; Neufeld and Barrows, 1974; Neufeld and Chong, 1985). These reforms still retained the model of the practitioner as someone who applies known solutions to recognizable categories of situations; that is, the reason for organizing knowledge around the contexts of practice rather than around the basic scientific disciplines was to promote better retention, and the reason for encouraging self-study was to assure that students would continue to seek out new content as it became available throughout their careers.

The most radical and widely recognized reform occurred at Case Western Reserve in 1954, when the entire basic sciences curriculum was reorganized around the organ systems, rather than around the scientific disciplines, and each course was taught by a committee representing the various relevant disciplines. Moreover, students learned through problems that required them to seek out knowledge in order to find solutions. In this way, students established their own study agendas. But over time, the program devolved back toward the more traditional approach to medical education (Williams, 1980). In 1968, a curriculum revision eliminated the bridge between basic and clinical sciences, reduced laboratory time, and eliminated self-study projects. By 1977, the syllabus had grown to 3,000 pages, and a self-study committee established for accreditation review said that the students concentrated on memorizing its contents rather than using the variety of learning resources that had been designed to foster self-directed, problem-oriented learning (Williams, 1980).

Enhancing Independent Thought and Analysis

Educators who emphasize independent thought and analysis more than the possession of codified content tend to hold a different model of the relationship between education and practice. Rather than trying to provide an a priori solution to every possible future problem, they are more inclined to provide extensive practice in analyzing situations and establishing situation-specific goals on the basis of that analysis.

Perhaps the most significant feature of this model is the assumption that goals can legitimately vary from one situation to another. The educator who believes codified knowledge can be applied to most situations also necessarily assumes there is an agreed-upon goal. Without prior agreement on goals, it would not be possible to define the appropriate knowledge in advance (Schon, 1983). But if situations can be resolved in a variety of ways, then the ideal practitioner is someone who can, upon encountering a new situation, generate alternative goals, develop hypotheses, conduct mental experiments, and try other alternatives. In the process, *both* means *and* ends are experimentally varied, until a satisfactory solution is obtained.

Architecture and law are fields in which faculty tend to assume that independent thought and analysis are the most important goals of professional education. These educators provide students with plenty of time to practice their profession's analytic strategies. Student-lawyers study almost exclusively by analyzing appellate court decisions, through which they acquire the principles of law, and student-architects participate in a series of studio design courses in which they practice designing a variety of architectural structures.

Law school generally follows a baccalaureate degree, and extends for three additional years. Though not universal, the most notable feature of law schools is their reliance on what they call a Socratic method of teaching. In the typical law school, students analyze appellate court decisions in an effort to reconstruct the reasoning that went into these decisions. They argue about alternative precedents that could be applied to the case and about the merits of different arguments that were made. It is this immersion into a way of thinking that marks the success of legal educators. They concentrate on appellate cases because these cases deal exclusively with the principles of law, whereas jurisdictional cases deal both with the law and with the particular facts of the case at hand. If they reviewed jurisdictional cases, students would have to consider not only the principles of law but also such issues as whether the witnesses were truthful, whether evidence was valid, and so forth. The appellate case provides students with an opportunity for purely legal reasoning.

The law curriculum, like engineering and medical curricula, consists of a series of relatively predictable course titles, organized around the contexts in which law is practiced: contracts, torts, criminal law, constitutional law, taxes and administrative law, and so forth (Boyak, 1980; Thorne, 1973a). Legal educators are so convinced of the importance of their analytic teaching strategy that arguments about the law curriculum tend to be over the amount of *time* students need to study law (two years versus three), rather than over the *content* of the courses they take. At issue is how much guided practice in legal analysis is needed before students are ready to practice as professionals.

Architects generally take a five-year baccalaureate of architecture degree. The first two years of their program is similar to the first two years of any other baccalaureate degree, while the last three years focus on professional education. During these last three years, students generally take one studio design course each term, along with other courses introducing them to various content areas (Cole, 1980). The bulk of the architecture curriculum, including the studio design courses, consists of electives, and architecture educators defend this approach to curriculum by pointing out that architectural knowledge is artistic knowledge; it does not accumulate in the way that scientific knowledge does (Guttman, 1985).

By the time architecture students graduate, nearly half of their professional curriculum has been studio design (Allen, 1980). Studio design is generally assumed to be at the center of all architecture schools, and it has been argued that an architecture school is as good as its studio design courses (Wines, 1984). There is some debate among architect educators about the nature and purposes of these studios, however. Some want studio to give students practice in pure design (Guttman, 1985; Wines, 1984), while others argue that design should be integrated with construction (McSheffrey, 1985) and with other social issues (Copeland, 1984; Stea, 1981). In the integrated versions, students design buildings that respond to a set of real constraints: a particular landscape, a particular function the building is to serve, a particular client concern. Taken together these constraints define The Problem, and the students' task is to develop A Solution. As students develop their solutions, they may study the architectural styles of a particular period, read about strategies for designing particular kinds of buildings, read social science studies about the population who will use the building (e.g., the elderly), or visit local examples of similar buildings and observe their use. The nature of architecture is such that many solutions are possible to any given problem, and the criteria for evaluating solutions are difficult to define. When students complete their work, they must present their solutions, along with the findings from their research, and must justify their designs not only to their classmates but to a jury as well (Hurrt, 1985).

It has been argued that teacher education should adopt independent thought and analysis as its primary goal. Just as legal educators want their students to think like lawyers and architecture educators want their students to be innovative and creative, contemporary teacher educators have borrowed Schon's (1983) language and want their teachers to be "reflective." Reflection is an ongoing process that enables teachers to continually learn from their own experiences by considering alternative interpretations of situations, generating and evaluating goals, and examining experiences in light of alternative goals and hypotheses (Dewey, 1904/1965; Schwab, 1978; Zeichner and Liston, 1987).

But this concept of practice lacks the cultural support that it enjoys in law and in architecture. In both law and architecture, analytic activity is associated with a culture of individualism: architects are supposed to create unique styles, and lawyers are supposed to be competitive. The culture of teaching is not one that values individualism or competition. Rather than encouraging vigorous debate among teachers, differences in viewpoint are glossed over with aphorisms like, "You have to find out what works for you," that tend to trivialize the significance of differences in view. Moreover, the intellectual products of architects and lawyers are available for public scrutiny in buildings and in legal records, so that lawyers and architects have ways of demonstrating their work, of being recognized for their independent contributions, and of being criticized for their failures. In contrast, the intellectual products of teachers' work are not publicly available. Neither their successes nor their failures can be scrutinized by their peers. Nor is it clear that teacher educators should promote independent thought, at least to the extreme that it is promoted in architecture and law, for concentrating on this goal at the expense of transmitting codified knowledge can lead to problems as well.

One problem occurs when educators decide that some particular content *is* important. When architect educators want to introduce particular content, for instance, they have difficulty doing so in a curriculum designed to enhance independent thought and analysis. Cole (1980) has pointed out that because studio design courses are purposely holistic, they do not enable architecture educators to teach any particular design principles or techniques. If architecture educators ask students to practice making buildings more energy- efficient, they automatically decrease student's attention to other design issues and thereby diminish the value of the design studio as a vehicle for learning to balance among numerous concerns when designing buildings. Yet if students do not learn to take energy efficiency into account, architecture educators have failed to produce the kind of graduates they should be producing. So the very strength of the architecture curriculum--its holistic studio designs--is also its greatest weakness, for it does not permit any particular issues to be highlighted.

Cole (1980) proposes solving this problem by incorporating concerns such as energy efficiency into the set of constraints that define the studio design problem. But such a solution raises other issues, for the entire set of studio design courses is loosely connected, with design constraints varying randomly from studio to studio. Introducing particular constraints into the system could upset the entire array in a way that would interfere with its decision-making orientation. While this solution can assure that students take particular issues into account, it cannot assure that they learn particular content that they may need to know.

Another problem with programs oriented toward independent thought and analysis is that these programs lack structure. Because these educators are more interested in the quality of the student's experiences than in the transmission of content, no, or very few courses, are required. Consequently, educators are accused of offering programs with nothing more than random sequences of experiences (Cramton, 1982) and they must routinely defend themselves against critics who wonder how their programs can be justified if nothing is required (Guttman, 1985; Schwartz, 1982). Cardoza (1977) suggests that the ambiguous curriculum makes it difficult for law students to tell if they are learning whatever it is they are supposed to be learning, and Rappaport (1984) criticizes studio designs for their inefficiency, pointing out that there is no evidence of their effectiveness. Porter (1979) argues that architecture has no conceptual map of the field, suggesting that the current mode of instruction enhances the "mysterious judgment" aspect of design. Moreover, professors in both fields have been accused of idiosyncratic standards such that students mainly learn to adapt to the particular views of particular professors (Porter, 1979; Rappaport, 1984). Even in law clinics, according to Condlin (1983), professors argue for subliminal preferences and use their authority at their own convenience to suppress discussions.

Another criticism of these programs is that they negatively affect students' sense of social conscience. In law, for instance, Dvorkin, Himmenstein, and Lesnick (1981) argue that the emphasis on relevance in legal reasoning suggests implicitly to students that nonlaw issues must not be relevant since they are never dealt with in the classroom. Similarly, Abrahamson (1979) suggests that the cherished goal of getting students to think like lawyers could mean that they no longer think like humanitarians, Cramton (1978) deplores the emphasis on hard facts and cold logic, and Pipkin (1979) argues that the latent curriculum produces a hierarchy of tasks such that intellectual tasks are valued over emotive, ethical, or aesthetic tasks, and analysis is valued over sensitive discussion or lecture.

Moreover, students adopt these values, and can become so intrigued by their intellectual task that they lose their sense of social purpose and consequently lack an adequate social conscience (Payton, 1985; Sutton, 1984). One result of law school norms is that students perceive courses dealing with issues of professional responsibility, introduced into law curricula following the Watergate episode, less intellectually rigorous and consequently as less important (Pipkin, 1979). The analogous situation in architecture occurs when students think that any design compromise necessarily demeans their artistic creations, even when the compromises are asked for by their clients. Fox (1984) points out that there are many satisfactory solutions to any given problem, and that it is possible to negotiate on certain points without jeopardizing the entire design, but that students often see their artistic designs as *thwarted* by clients, rather than seeing the client's desires as a legitimate part of The Problem (Guttman, 1985). Similar myopic vision can occur among lawyers when, for instance, they advise clients according to what is legally justifiable, with no regard for whether their proposal is actually in the clients' best economic or personal interests (Payton, 1985).

Students may also adopt the view that codified knowledge is of less importance than their own analytic thought processes. In architecture, students' lack of interest in construction became such a serious issue in the 1970s that a major symposium was held several years ago to analyze this problem and to generate solutions to it (Wagner, 1981). Participants bemoaned the fact that architecture students were not interested in engineering and wished students would envision themselves as master builders. Though clients tend to judge architects by their technical results, architects judge each other by their aesthetic results, thus further reinforcing the view that technical issues are not important. Several participants at this conference felt this anticonstruction view emanated from the 1940s, when architecture educators began to view engineering as too vocational to be included in professional education. Other participants argued that construction was indeed vocational and that it not did not belong in a professional education. Here is a case, then, where a particular body of knowledge was perceived to be useful for architects to know but was not perceived to be sufficiently intellectually rigorous to meet their standard for university work. Consequently, professional educators found themselves at odds over their role in providing this knowledge to students.

Finally, in part because of educators' orientation toward thought and analysis and against content coverage, employers often claim graduates do not know enough about basic principles and techniques of their fields. Architecture graduates are said to lack knowledge of the principles of construction (McSheffrey, 1985) and law graduates to lack knowledge of how to prepare legal briefs (Payton, 1985). Porter (1979) has even argued that, because architecture graduates do not have adequate scientific and technical knowledge, more and more buildings are being built without their help: Public housing projects are designed by social engineers, and airports are built on the basis of complex mathematical models of traffic patterns with which architects are not familiar.

Law schools have been severely criticized for their inattention to the techniques of practicing law (Clare, 1976; Cramton, 1982; Littlejohn, 1980; Roark, 1978). These criticisms crescendoed in the past two decades, after Chief Justice Warren Burger publicly criticized the competence of lawyers practicing in the Federal courts (Burger, 1973; Jacobson, 1979). A New York commission formed to review the situation recommended that any lawyer wanting to practice before the Second Circuit Court should be required to take a specific set of courses (Clare, 1976). The recommendation stimulated a storm of controversy among law educators and lawyers. Law-school deans who testified before this commission resisted the idea of requiring particular content on the grounds that their purpose was to teach students to think like lawyers and that no specific course content was necessarily relevant to that goal.

In other arenas, law educators have also argued against teaching specific skills. Cardoza (1977), for instance, argues that practical techniques can be learned in the doing, but that those professional qualities of most importance can develop only by participating in penetrating analyses. Rohan (1976) tells the story of a law professor's response to an irate father: The father complained that his son had not learned to draw up a particular kind of document, and the father had to teach his son himself. The professor asked how long it took to teach this, and the father estimated about five minutes. The professor then said, "I thought so. You see, we are teaching our students things which you couldn't teach him in a lifetime."

The Problem of Ambivalence

In the professions described above, educators have reached a remarkable consensus in their views about the nature of professional practice and the way in which professional education contributes to practice. In each case, that agreement focused attention *either* on knowledge acquisition *or* on independent thought, so that attention to the other goal became the province of a small counterculture within each profession. In other professions, educators fall into yet another kind of difficulty, for they are unable to agree on a requisite knowledge base or on an appropriate pedagogy for their profession. Educators in these professions lack strong cultural norms regarding what counts in their fields. Included in this set of professions are social work, nursing, librarianship, and journalism.

Social work educators offer two professional degrees, a bachelor's (BSW) and a master's (MSW) degree. Until the late 1960s, the MSW was the first professional degree. But in 1969, the National Association of Social Workers began admitting BSW practitioners to membership in the association, and in 1970, the Council of Social Work Educators began accrediting BSW programs (Dinerman, 1981; Guran and Williams, 1973). Recognition of the BSW as the first professional degree occurred partly because employing agencies could not afford MSW-degreed people, and so were hiring people with bachelor's degrees in other fields and giving them full social-work responsibilities. Since most professions are under continual pressure to raise their first professional degrees, either to enhance their profession's status or to provide space for more content, social work is unusual in lowering its first professional degree (Cohen and Wagner, 1982).

Both BSW and MSW curricula include courses in five areas: human behavior and social environment, research methods, social welfare policy, social work practice, and field experiences. Courses in human behavior and social environment are analogous to foundation courses in education, and social work practice courses are analogous to methods courses. Apparently, the number of credits and the content offered in these five areas is highly variable across programs, and content on ethics is scattered unsystematically throughout the curriculum (Dinerman, 1981). The Council on Social Work Education requires students to take 300 clock hours of field experiences, either concentrated in blocks of full-time work (Wilson, 1981) or spread over 30 weeks for two or three days a week (Council on Social Work Education, 1984).

Prior to the 1960s, social work educators assumed their graduates would engage in *casework*--that is, they would help individual clients make social or psychological adjustments (Goldstein, 1980). In keeping with that assumption, curriculum guidelines emphasized the growth and development of individuals, and curriculum content was driven primarily by personality theories. But in the 1960s, questions were raised about whether the primary task of the social worker was to help the individual adapt to the situation or to help the individual *change* the situation. Social workers and social-work educators began to construe social workers as professional change agents. In 1962 the curriculum guidelines were altered to refer to human growth and the *social environment*, rather than human growth and development, and in 1969 all curriculum requirements were removed in favor of a general goal of professional values and a commitment to serving people (Guran and Williams, 1973). The field continues today to be divided between these two professional roles (Goldstein, 1980).

Social-work educators are plagued by disputes about the role that codified knowledge can play in social work. One regularly finds articles in which research and theory are disparaged for their potential to jeopardize the genuineness of social-worker/client relations. Bierter (1977), for instance, argues that the goal of science is to explain phenomena with principles that are independent of time and place, but that the social worker's role is to experience each conversation as a unique encounter. When social workers use theories to guide their conversations, they can fail to connect a client's problems to his or her particular time, place, and personality. Gelfand (1982) argues for the importance of divergent thinking in social work, and suggests the field overemphasizes logical thinking, and Reid (1979) pleads for social workers not to view people as puzzles, because that view mechanizes and alienates them.

Nursing programs are offered through three different degrees, and the curricula, even within a given degree, are extremely varied. Baccalaureate-degree nursing (Bachelor of Science in Nursing/BSN) programs also vary in the proportion of professional versus arts and sciences courses that are required. On average, nursing courses compose 43 percent of the curriculum (Quiring and Gray, 1979). This variation in content and volume occurs in part because nurse educators cannot agree on what knowledge is critical to nursing. Scales (1985) argues that what is needed is a conception of nursing as a profession. For instance, human beings, the objects of nursing care, may be thought of as biological, psychological, social, or spiritual beings. Similarly, the nursing process can be construed as interpersonal, supporting, assisting, problem solving, adaptation, behavioral, or health care; and the goal of nursing can be construed as equilibration, adaptation, repatterning health, self-care, health restoration, health maintenance, or health promotion. Developing an appropriate curriculum requires nurse educators to sort through all of these issues.

This confusing array of possibilities is apparent in the variety of curricula being proposed or implemented by nurse educators. Greaves (1984) proposed that the curriculum be organized around specific kinds of nursing interventions: preventative, restorative, adaptive, and maintenance, while King (1986) includes courses in historical and philosophical foundations of nursing, theories of nursing, ethical and legal dimensions of nursing, role and function of the professional nurse. In the late 1970s, Quiring and Gray (1979) surveyed BSN program directors and found extreme variability among their curricula. One program, for instance, included courses on adult illness, child illness, maternal-child illnesses, psychosocial illnesses, and community health; another included courses on the nurse in relation to the individual, the family, and the community; another on minor and major health issues, and health care systems; and yet another on process adaptation, tools, synthesis, chronicity, and complex situations.

A major argument within nursing education today concerns the most appropriate degree for nurses to obtain. The American Nurses Association has formally adopted the BSN as the degree of choice, but the field contains strong opposition to this degree. Faculty in BSN programs are working to establish role distinctions between BSN nurses and others, arguing that the nurse with a BSN is a professional whereas the nurse with a two-year associate degree in nursing is a technician (Kramer, 1981), and that BSN nurses are more capable of leadership or that they are more accountable (McClosky, 1981). Critics of this movement accuse college programs of being "ivory towered"

(Dexter and Liadig, 1980). They argue that nurses do not need any professional education at all; that all they need is social conscience (Nichols, 1987); that overeducated nurses cannot or will not do the work that is needed; that they are more assertive, expect higher salaries, expect better working conditions, and only want to supervise (Grace, 1983).

Library schools are also troubled by ambiguities about both degree and content. In the not-so-distant past, library schools provided a more detailed curriculum than they now do. The core curriculum included book selection, cataloguing and classification, reference, administration, and the history of books and libraries. Students first completed a baccalaureate degree in a field of study of their own choosing, then completed a one-year program that led to a second baccalaureate degree in library science. Later, if they wanted, they could return for another one-year program that would yield a master's degree in library science. In the early 1950s, these two one-year degrees were collapsed into a single one-year master's degree (Bidlack, 1981). In the 1960s, library faculty began to question their core courses, and eventually most library schools stopped requiring courses (Marco, 1978). Today, most master's degrees consist of a one-year program with no required courses. The American Library Association's (ALA) accreditation standards do not delineate a library curriculum but instead describe broad substantive goals such as emphasizing the significance of the subjects taught and reflecting the findings of research (American Library Association, 1975).

One reason the curriculum content for library schools is difficult to define is that the profession itself is becoming increasingly diversified. Many students do not become librarians but instead become information specialists (Bidlack, 1981). In response to these changes in the field, some 38 percent of library schools now carry the term *information sciences* in their titles (Stuart, 1981). But diversification makes it particularly difficult to identify a body of codified knowledge that is relevant to such diverse occupations. Garrison (1978) has argued the need to move course content away from specific techniques and toward general principles, on the ground that the diversity of professional occupations renders the teaching of specific techniques no longer practicable. In a related move, the American Library Association specified that, for accreditation, courses should stress understanding rather than rote learning of facts (American Library Association, 1975). Thus, while Garrison advocated a change in emphasis as a means of offering applied knowledge, the ALA recommended a similar move as a way of making course content more intellectually rigorous.

Finally, journalism suffers from ambiguity of purpose. Journalism has traditionally been, and continues to be, a baccalaureate-level degree that permits students to specialize in such diverse areas as advertising, public relations, mass communication, or sometimes even in interpersonal communication (White, 1986). Journalism students must take a curriculum that includes at least 75 percent liberal arts courses and are expected to limit their journalism courses to 25 percent of their curriculum. Typical courses within journalism include reporting, feature writing, history of journalism, journalism ethics, sociology, organization or psychology of journalism, the law of libel, and comparative journalism (Lindley, 1975).

But the journalism professoriate cannot agree on critical professional content or pedagogy. In his examination of the field, Lindley (1975) found several approaches to journalism education. One approach emphasized the principles and techniques of communication, another emphasized humanities--because journalism shapes tastes--and yet another emphasized social sciences--because journalists transmit knowledge. The field is also split in regard to what its core courses should emphasize. In a recent survey of journalism educators, Blanchard and Christ (1985) found a variety of approaches to core course requirements for journalism degrees. Some schools required no core courses; some required courses that emphasized the scientific or technical knowledge, topicslike news writing and communication law; some emphasized thinking and analysis through case studies or practice "researching" sources; and some provided exposure to issues of social conscience through courses that present journalism in a broader social context.

Teacher educators also fall within this group of ambivalent professional educators. As I have shown above, some teacher educators envision the ideal teacher as someone who knows the research findings regarding pedagogy and can apply these principles to each situation encountered, while others argue that teaching practices cannot be prescribed and envision instead an ideal teacher who can analyze each new situation, recognizing, for instance, a unique teachable moment when children are suddenly open to an otherwise-difficult idea. While some might argue that such divergent views stimulate creative program development, Smith (1980) argued that the current disunity in teacher education is merely confusing, and Watts (1982) has referred to it as chaos. In fact, in none of these fields is ambivalence productive. Rather than promoting balanced attention to the two main goals of professional education, ambivalence stimulates endless debates about the nature of the professional task and a tendency to overly abstract and idealized characterizations of the work.

Nurse educators, for instance, in their desire to develop an ideal conception of the nurse's role, have developed an excessive passion for theory and have almost severed their ties with practice. Their efforts to define their curriculum are tied to efforts to define a nursing role that is substantially different from the role most nurses actually assume when they are employed. When nursing students have learned idealized models of practice rather than real ones and have had little guided clinical experience, many are unable to adjust to the demands of practice (Brudney, 1987; Dexter and Liadig, 1980). Drop-out rates within the profession are extremely high within the first 18 months, and can be as high as 70 percent within the first five years (Brudney, 1987). In an ethnographic study of beginning nurses, Kramer (1974) found that nurses encountered *reality shock*, a variant of culture shock, when they left their ivory-towered educational setting and entered real hospitals. In school, they had learned to value high-quality care giving such that each patient received comprehensive, sympathetic attention. But the demands of hospitals require numerous compromises.

White (1986) argues that most journalism courses are also overly theoretical. He claims that they have no bearing on practice and that journalism students are not curious in a profound way, but rather in a restless way. Journalists, he argues, enjoy trivial pursuit, and taking theoretical courses does not alter their inherent makeup. Under the assumption that theory stands in opposition to practice, White advocates journalism courses that are less theoretical and more applied.

The Problem of Social Conscience

Just as professional educators try to provide their students with the intellectual tools needed for their work, they also try to provide them with an appropriate sense of their professional responsibilities to their clients and to society as a whole. Professional educators encounter two central problems in their efforts to develop students' social consciences. One is that attention to the intellectual tools of the profession necessarily limits, and can even inhibit, the development of appropriate social consciences; that is, the strong press to acquire a large volume of codified knowledge, or to become more intellectually facile, can yield students whose social consciences are atrophied as a result of these intense intellectual experiences. As we have seen, educators in medicine, engineering, law, and architecture have all encountered this dilemma.

The second problem is that it is not clear whether or how students' social consciences can be influenced. If the nature of the profession's intellectual task is difficult to define, the nature of its social conscience is even more difficult to define. One view holds that social conscience derives from knowledge that can be given to students and that the educator's task is to assure that students learn the requisite knowledge and skills associated with a social conscience. Another view holds social conscience to be a matter of character and argues that developing a social conscience is not a matter of adding new knowledge or skill but rather of providing experiences that inspire students to construct their own social conscience.

Consistent with their view that all professional education resides in content, medical educators and engineering educators also tend to assume that the route to social conscience is through additional course content covering social issues. Each field provides courses in professional ethics, and each contains a minority of educators who advocate courses in the humanities as a means of producing practitioners with a stronger sense of social conscience (Graham, 1980; Pellagrino, 1977, 1978; Walton, 1985). In fact, there now exists an organization in medical education whose goal is to introduce more humanities courses into the curriculum. Similarly, engineering educators have heard arguments for students taking more humanities courses (Poruch and Benzon, 1983) and for programs offering more interdisciplinary courses, where engineering faculty and humanities faculty teach together (Goulter, 1985; Hodges and Lichter, 1980). Engineering schools have responded only half-heartedly to proposals to add more humanities courses to the curriculum (Turmeau, 1982), in part because they evaluate humanities courses from a utilitarian frame of reference (Hodges and Lichter, 1980), and in part because they perceive these courses as less intellectually rigorous (Goulter, 1985). Consequently, advisors often denigrate humanities courses so that even when students take these courses, they do not expect to benefit from them.

Social work educators, like medical educators, tend to view social conscience as knowledge. One way they try to enhance social conscience is by incorporating a specific view about the profession and its social role into the body of content knowledge to be taught. When Griffin and Eure (1985) surveyed BSW program directors to learn what they perceived to be the most important content for social workers to learn, they included three kinds of content: knowledge, skills, and values. A value might be, "respect for variations in personal life styles" or "a belief in the right of access to services." These education outcomes, explicitly geared toward the students' social conscience, constituted about 10 percent of the content social work program directors identified as most important.

In addition, some of the items labeled as *knowledge* also had a value-laden component. Among the knowledge items program directors identified as important were "understanding the strengths of minority families and minority cultures" "inherent inequalities in social service delivery for special groups including minorities, women and the aged" and "the legitimacy of social work at the societal level." In addition to providing "right" ways of thinking about social issues, social work educators also provide specific training in behaviors that are associated with "right" social positions. Thus

Keefe (1979) designed an empathy training course in which he taught the specific behaviors of empathy.

By far the most common strategy for developing students' social conscience is by providing them with courses in the humanities, a strategy that offers the advantage of deferring the issue to other faculty. Often, the argument for requiring a bachelor's degree as a prerequisite for entering professional school is that students need a strong liberal education in order to have the personal attributes required of a professional. When the BSW became the professional degree for social work, social work educators had to decide the extent to which they would permit professional courses to replace general education courses. In a fascinating series of letters to the editor of *Social Work*, social work educators argued their myriad positions: that humanities are more helpful in learning to deal with people than social sciences are (Williams, 1977); that humanities make no contribution at all (Kilman, 1977); that new BSW practitioners will have taken so few humanities courses that they will be technicians rather than contemplative minds (Brull, 1977); that an intellectual education is no guarantee of a humanistic one (Shatz, 1977); and that liberal arts students also spend their second two years in a single discipline, and so are no more liberally educated than are BSW students (Constable, 1977).

Although teacher educators give as much lip service to social conscience as other professional educators do, they have fewer agreed-upon strategies for achieving this goal. Courses in professional ethics are nearly nonexistent in teacher education, and humanities courses are assumed to provide teachers with content to teach rather than with social consciences. Instead, like social workers, teachers obtain their social consciences through foundations courses, courses with titles such as "school and society" or "teaching the disadvantaged child."

The Importance of Coherence in Professional Education

The most compelling arguments for professional education strategies are based on the nature of practice. Medical and engineering educators argue that their students need to apply codified knowledge to situations in a prescribed way, while law and architecture educators argue that their students need be independent thinkers, interpreting the situations they encounter in a variety of ways. Educators of social workers, nurses, librarians, journalists, and teachers cannot reach consensus on the nature of their graduates' work. Regardless of the agreement that is reached, educators in virtually all fields assume that the essence of practice is *either* the application of technical knowledge *or* independent thought and that the role of professional education is to enhance the practitioner's ability to do that one thing well.

Moreover, professional educators seem to assume that these two goals are mutually exclusive, so that enhancing one automatically hinders the other. The memory tasks imposed on students in knowledge-oriented curricula are presumed not only to *replace* time to think and analyze but actually to *hinder* the capacity for independent thought. Practice in problem solving is often argued not only to *limit* the volume of knowledge that can be conveyed to students but actually to *stultify* students' interest in learning such content. Rarely does any group of professional educators entertain the possibility that providing more knowledge may actually facilitate problem solving or that providing problem-solving skills may help students find the knowledge they need when it is time to apply it.

The history of professional education provides some explanations for these patterns. Professional preparation has evolved in most cases from apprenticeships to university degrees and part of the rationale for this evolution was that practice required a deeper and more intellectual preparation than mere training in a smattering of technical skills. The argument, in other words, focused on the intellectual nature of the knowledge or skill required, rather than on its utility. This history places professional educators in a unique position: Their reason for being is based on the utility of their programs but their reason for being *in a university* is based on the intellectual rigor of their program. So just as professional educators must balance between--or choose between--the goal of giving students knowledge and the goal of helping students learn to reason on their own, they must also balance between, or choose between, the standard of intellectual rigor and the standard of utility.

The resolution of the standards dilemma contributes to the resolution of the goals dilemma, for educators have developed separate rationales for each goal that renders each by itself to be both useful and rigorous. Thus, by selecting one or the other of the goals, rather than a dual goal, professional educators can solve the apparent tension between intellectual rigor and utility. In medicine and engineering, both academic rigor and utility are measured by the volume of knowledge students acquire. The more knowledge students get, the more rigorous the program. And the more knowledge they get, the more prepared they are for the myriad situations they will face in practice. Thus the two standards not only reinforce each other, they reinforce the prevailing view of practice as the application of codified knowledge, and they reinforce the prevailing goal of professional education as giving students as much knowledge as possible.

Just as medical educators view the problem-solving curriculum as less rigorous, because it diminishes the volume of content that can be covered, so law and architecture educators view content coverage as less rigorous because it is not as intellectually demanding as analysis is. And they view content as less useful as well: Law educators remind their critics that information does not last over time (Sovern, 1976) and architect educators that excessive theorizing can destroy the intuitive sense they should be developing (Guttman, 1985). Though these arguments are based in part on an assessment of the nature of professional practice, they are also based to some extent on expedience. For instance, while it is reasonable to argue that relevant codified knowledge should be given to practitioners, the volume of such knowledge available is a matter of judgment. Legal knowledge, for instance, does not accrue in the same way that scientific knowledge accrues, but there is nevertheless a continually expanding data base of legal precedents and laws for budding lawyers to know about. Yet legal educators resist the notion that their task should be to assure that their students have absorbed all of this content.

Alternatively, to the extent that professional practice is perceived to be ambiguous, professional educators might argue that they need to provide extensive training in decision making. But ambiguity is also in the eye of the beholder, for medical complications sometimes place physicians in highly problematic situations, and many architectural tasks are, in fact, quite routine. Yet despite their tenuous premises, each line of reasoning, whether it focuses on the volume of knowledge or on independent thought and analysis, is strengthened by its own internal consistency, and each resists regular attacks by the profession's counterculture. Though the two lines of reasoning are different, each enables educators to define practice, to define their own educational goals, to define the standards of academic rigor and utility, and to do all of these things in ways that are compatible.

There are many ways in which practitioners who graduate from these tightly argued programs differ from graduates of programs in which educators are ambivalent. One difference has to do with income: Generally speaking, physicians, engineers, lawyers, and architects all earn more than social workers, nurses, librarians, journalists, or teachers. Another difference has to do with gender: The former professions are dominated by males, the latter by females. Still another difference has to do with the work environment. Practitioners in the former fields have traditionally been self-employed while those in the latter fields have tended to be employed by public agencies. The extent of these differences varies by profession, and varies over time, but these general patterns still contribute to differences in social status among professions and to reams of literature on the sociology of professions.

But there is another important difference between these groups, and that has to do with the perceived intellectual demands of their practices. A coherent "package" of views, regardless of whether the view is that practice requires volumes of knowledge *or* that it requires independent thought and analysis, enables both educators and practitioners to share a coherent set of beliefs and values, and thereby to develop unified professional standards, guidelines, and curricula. Even if their educational practices fail to provide students with the full complement of intellectual tools they need, they provide clear intellectual identities. These intellectual identities, in turn, generate a public perception that practitioners really do possess a special kind of expertise that justifies a special status. Professions without such strongly shared views do not have clear intellectual identities, and their work is often not perceived to have a particularly demanding intellectual character. The choice between providing volumes of knowledge and fostering independent thought and analysis is a hard one to make, for either option necessarily means that students do not receive all the intellectual tools they need. But the failure to choose denies students an intellectual identity and consequently all the social and personal benefits that accompany that identity.

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